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A new frontal writing point for use with ink.

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The pen (Fig. 1) is designed to write with ink but can be used equally well with smoked paper. It is very simple to construct and has been in daily use for more than twelve months. It is made of capillary glass tubing. The pen itself has a bulb *E*, blown in the by-pass flame of a

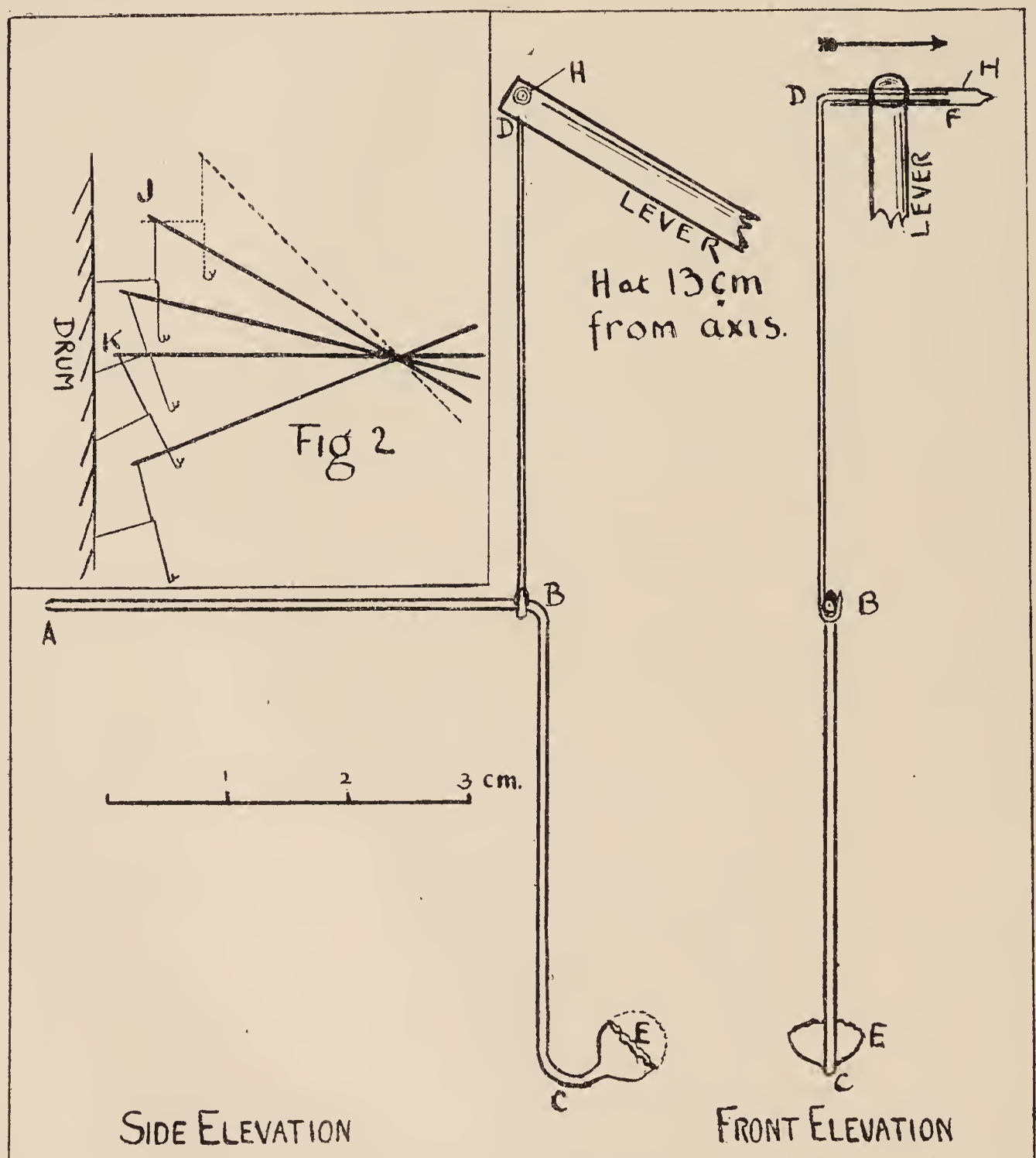


Fig. 1.

bunsen and broken off to form a funnel. Ink is placed in *E* (ordinary red writing ink) and runs up to the pen point *A* by capillary attraction. The amount of ink which leaves *E* governs the thickness of the line

inscribed, and can be regulated by closing the hole in the flame. If the dimensions of the pen are such that the level of the ink in *E* is below the point *A* in every position of the lever (Fig. 2), blots are not formed, the ink only rising when the pen is moved over the paper. The carrying arm *DB* is cemented to the pen proper at *B* with some fusible cement. The hinge *H* is made from capillary tubing¹ just large enough to take *DF* by drawing slightly conical capillary tubing and breaking it off until the right diameter is reached. The carrying arm is bent in such a direction that the friction of the drum against the point tends to carry *DF* into the hinge (the arrow in Fig. 1 shows the direction of the movement of the drum). The pen can be used for lateral writing when it can be made very much smaller, the hinge and carrying arm can be discarded and the pen attached to a flexible mount such as the Bayliss hinge. For the dimensions of the pen given in Fig. 1 the error of the line inscribed as compared with the arc are described by the hinge *H* is less than 1.0 mm. when the lever moves from 10° below the horizontal to 20° above, and when *H* is not further than 1 cm. from the drum with the lever horizontal. The same applies to the relationship of the vertical distance through which *H* moves. The error is of course the same as for a writing point made on the Lovatt Evans model in which the distance from the hinge to the writing point is the same as the distance *HA* in this pen.

The nearer the hinge *H* is to the drum with any form of frontal lever the more accurately the line inscribed on the drum represents the arc described by the hinge, as can be shown by quite simple graphic methods.

¹ Cf. Sherrington writing point for heart levers.

